REVISIONS TO THE STATE IMPLEMENTATION PLAN FOR INHALABLE PARTICULATE MATTER (PM_{10}) GROUP II AND III AREAS

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C. INHALABLE PARTICULATE MATTER (PM_{10})

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1. INTRODUCTION

The Federal Clean Air Act (FCAA) in 1970 required the Environmental Protection Agency (EPA) to establish and periodically revise the National Ambient Air Quality Standards (NAAQS). The NAAQS for particulate matter, measured as "total suspended particulates (TSP)," were promulgated in 1971. The primary NAAQS for TSP were 260 ug/m^3, measured over a 24-hour period, not to be exceeded more than once per year, and 75 ug/m^3 annual geometric mean, not to be exceeded. The secondary NAAQS for TSP were 150 ug/m^3, measured over a 24-hour period, not to be exceeded more than once per year, and 60 ug/m^3 annual geometric mean, designated only as a guide.

Pursuant to the requirements of the FCAA, EPA proposed changes to the particulate matter NAAQS on March 20, 1984. Proposed changes included: 1) replacing TSP as the indicator for particulate matter with a new indicator that includes only those particles with an aerodynamic diameter of 10 micrometers or less (PM_{10}); 2) changing the level of the 24-hour primary standard to a value to be selected from a range of 150 to 250 ug/m^3 and replacing the deterministic form of the standard with a statistical form; 3) changing the annual primary standard to a value to be selected from a range of 50 to 65 ug/m^3 and changing the form from an annual geometric mean to an expected annual arithmetic mean; and 4) replacing the 24-hour secondary TSP standard with an annual TSP standard selected from a range of 70 to 90 ug/m^3, expected annual arithmetic mean.

After a lengthy comment period, EPA promulgated the new particulate NAAQS on July 1, 1987, to be effective as of July 31, 1987. The particulate matter indicator of the new standard

is PM_{10}. The primary 24-hour NAAQS is 150 ug/m^3, not to be exceeded more than once per year averaged over a three-year period. The primary annual NAAQS is 50 ug/m^3 expected arithmetic mean, not to be exceeded. The secondary standards are identical to the primary standards.

On July 1, 1987, EPA also promulgated final rules for implementing revised particulate matter standards. The final rules set forth the policy to follow regarding revisions to the State Implementation Plan (SIP) to account for the revised standards; amendments to significant harm and air pollution episode levels for particulate matter; amendments to the regulations for preconstruction review of new and modified sources in nonattainment areas, and to regulations for prevention of significant deterioration (PSD); and amendments to part 81 regarding designation of areas.

On August 7, 1987, EPA published a Federal Register notice categorizing areas in the country into three groups based on the probability that an area would exceed the PM_{10} NAAQS. Areas with 95 percent or greater probability of violating the PM_{10} NAAQS were classified as Group I. Areas where attainment of the PM_{10} NAAQS was uncertain (probability of greater than 20 percent and less than 95 percent) were classified as Group II. Areas with a strong likelihood of attaining the standard (probability of nonattainment less than 20 percent) were classified as Group III. Based on this classification, El Paso was the only Group I area identified in Texas. There are four areas in Texas identified as Group II: Harris County, Dallas County, Nueces County, and Lubbock County. Appendix B shows the calculated probabilities for each of these areas.* The remaining counties in Texas were designated as Group III areas.

*Calculations based on Procedures for Estimating Probability of Nonattainment of a PM_{10} NAAQS using Total Suspended Particulate or PM_{10} Data, EPA-450/4-86-017.

2. PM_{10} GROUP II AND GROUP III AREAS

a. SIP Requirements

In accordance with the new rules promulgated on July 1, 1987 (Federal Register, Vol. 52, No. 126, p. 24681), states are required to submit SIPs for all areas in Group II within 9 months of NAAQS promulgation. However, Group II SIPs need not contain full control strategies and demonstrations of attainment and maintenance. States may submit a "committal" SIP for Group II areas to supplement the existing SIP with enforceable commitments. The "committal" SIP must include the following requirements.

1) Gather ambient PM_{10} data, at least consistent with minimum EPA requirements and guidance. 40 CFR, Part 58.13 requires states, within one year after PM_{10} NAAQS promulgation, to begin sampling every other day (at least at ıe site) in Group II areas.

2) Analyze and verify ambient PM_{10} data and report 24-hour NAAQS exceedances to the appropriate EPA Regional Office within 45 days of each exceedance.

3) When an appropriate number of verifiable 24-hour NAAQS exceedances become available (See Section 2.0 of the PM_{10} SIP Development Guideline) or when an arithmetic mean above the level of the annual PM_{10} NAAQS becomes available, acknowledge that a nonattainment problem exists and immediately notify the appropriate EPA Regional Office.

4) Within 30 days of notification, referred to in (3) above, or within 37 months of promulgation, whichever comes first, determine whether the measures in the existing SIP will assure timely attainment and maintenance of the primary PM_{10} standards, and notify the appropriate EPA Regional Office.

5) Within 6 months of the notification, referred to in (4) above, adopt and submit to EPA a PM_{10} control strategy that assures attainment as expeditiously as practicable but no later than 3 years from approval of the committal SIP.

For Group III areas, the existing SIP is considered adequate to demonstrate attainment and maintenance of the PM_{10} NAAQS. Therefore, the states are required only to make SIP revisions as required under the preconstruction review program.

b. Review of Existing State Regulations

The Texas Air Control Board (TACB) has reviewed and evaluated the state regulations pertaining to the control of particulate matter and has identified the following regulations that need to be revised in attaining and maintaining the PM_{10} NAAQS.

1) TACB General Rules

This rule is being revised to incorporate new definitions included in 40 CFR Part 51.100(oo) through (ss) and the "de minimis impact" definition to incorporate the new significance level for PM_{10} as required by 40 CFR Part 51.165(b).

2) TACB Regulation I: Control of Air Pollution from Visible Emissions and Particulate Matter

This regulation is being revised to incorporate PM_{10} requirements in addition to requirements for the control of total suspended particulate matter.

3) TACB Regulation VI: Control of Air Pollution by Permits for New Construction or Modification

The PSD rule changes are being adopted (public hearing March 31, 1988) by reference to 40 CFR Part 51.166 and the EPA document Ambient Monitoring Guidelines for Prevention of Significant Deterioration, EPA-450/4-87-007, May, 1987. New source review requirements specified in 40 CFR Part 51.165(b) are already in place in TACB Rule 116.3(11) which states:

"After June 30, 1979, the owner or operator of a proposed new facility to be located anywhere within the state that is a major stationary source of emissions of any air contaminant (other than volatile organic compounds (VOC)) for which a national ambient air quality standard has been issued, or is a facility that will undergo a major modification with respect to emissions of any air contaminant (other than VOC), must meet the following additional requirements if the ambient air quality impact of the source's emissions would exceed a de minimis impact level as defined in §101.1 of this title (relating to Definitions) in any area where the standard is exceeded or predicted to be exceeded.

(A) The proposed facility will comply with the lowest achievable emissions rate (LAER) as defined in §101.1 of this title (relating to Definitions).

(B) All major stationary sources owned or operated by the applicant (or by any person controlling, controlled by, or under common control with the applicant) in the state are to be in compliance or on a schedule for compliance with all applicable state and federal emission limitations and standards.

(C) By the time the facility is to commence operation, total allowable emissions from existing facilities which have more than a de minimis impact on air quality in the same area as the proposed facility, from the proposed facility, and from new or modified facilities which are not major sources but which will have more than a de minimis impact on air quality in the same area as the proposed facility, will not cause the national air quality standard for that contaminant to be exceeded at any location and will not have more than a de minimis impact on air quality at any location where the standard is exceeded."

4) TACB Regulation VIII: Control of Air Pollution Episodes

This regulation is being revised in order to incorporate revisions to the significant harm level for PM_{10} required by 40 CFR Part 51.151.

Table 1 shows the time schedule for implementing the revisions to state regulations. The TACB will submit copies of the revised regulations to EPA after adoption.

c. Definition of PM_{10} Group II Areas in Texas

For areas with insufficient PM_{10} data, EPA used a three-step process to categorize areas. First, where only ambient TSP data were available or limited amounts of PM_{10} data were

Table 1.

SCHEDULE OF TEXAS AIR CONTROL BOARD RULE CHANGES
FOR INHALABLE PARTICULATE MATTER

Rule	Public Hearing	Final Adoption
eneral Rules Definitions)	by August 1, 1988	by October 31, 1988
egulation I Control of Air Pollution rom Visible Emissions nd Particulate Matter)	by October 15, 1988	by December 31, 1988
egulation VI Control of Air Pollution y Permits for New Con- truction or Modification PSD)	March 31, 1988	by July 15, 1988
egulation VIII Control of Air Pollution pisodes)	by August 1, 1988	by October 31, 1988

available, EPA in cooperation with state agencies used the data and the probability guideline to classify areas. Second, EPA's Regional Offices, after consulting with the appropriate state and local agencies, evaluated the existing TSP SIPs and other relevant information for each area in their jurisdiction. Third, to insure national consistency, all groupings were reviewed by representatives of EPA's Headquarters staff and Regional Offices.

Since the 24-hour PM_{10} NAAQS specifies that the expected number of exceedances must be less than or equal to one per year over a three-year period, probability calculations were done using three years of monitoring data. Initial calculations were done by EPA using TSP monitoring data for years 1983 through 1985. However, according to EPA recommendation, the final area determinations were made using the monitoring data for years 1984 through 1986.

The Federal Register notice listing area classifications designated whole counties as Group I or Group II areas. In the PM_{10} SIP Development Guideline, Section 2.5, EPA has recommended that the states conduct an analysis to determine if the Group I and Group II areas can be limited to specific areas inside these counties. Three main approaches in refining area boundaries were identified.

1) A qualitative analysis of representativeness of the ambient air quality data to the area, together with consideration of terrain, meteorology, and sources of emissions;

2) spatial interpolation of air monitoring data; or

3) air quality simulation by dispersion modeling.

The TACB chose to pursue the first approach because of the availability of air quality and emissions data.

Analysis by the TACB included compiling maps showing all TSP and PM_{10} monitoring stations and major stationary emission sources in each county (see Appendix A). Probability estimates of nonattainment of PM_{10} NAAQS were then calculated for each TSP monitoring site using the latest three-year air quality data for TSP (1984-1986) (see Appendix B). This data was used to identify the expected maximum concentration site to determine where PM_{10} monitoring must be conducted.

The following discussion outlines our analysis and conclusions for the four Group II areas in Texas.

Harris County: There were 32 TSP monitoring sites in Harris County in the period 1984-1986, 20 of which had three complete ears of data. The probability calculations identified only two sites, Clinton Drive site (SAROAD #2560035H01) and Port Terminal site (SAROAD #2560019H01), with greater than 20 percent and less than 95 percent probability of not attaining the PM_{10} standards. As can be seen on the map in Appendix A, these two monitors are located in the current Harris 1 TSP nonattainment area in the industrial district of the Houston Ship Channel. All the other monitors in the Houston area showed less than 5 percent probability of exceeding the PM_{10} standards. In anticipation of the PM_{10} NAAQS promulgation, two PM_{10} monitors have been operating in Harris County since 1985, one at Mae Drive (SAROAD #2560034F01) and the other at Aldine (SAROAD #2330024F01). The highest 24-hour PM_{10} values recorded at Mae Drive were 126 ug/m^3 in 1985 and 112 ug/m^3 in 1986. The annual arithmetic means were 41 ug/m^3 and 33 ug/m^3 in 1985 and 1986, respectively. The highest 24-hour PM_{10} values recorded at Aldine were 109 ug/m^3 in 1985 and 104 ug/m^3

in 1986 and annual arithmetic means of 31 ug/m^3 and 30 ug/m^3, respectively.

Since no PM_{10} emission inventory is available, major TSP sources (greater than 100 tons per year) were plotted on a county map (see Appendix A). It appears that the majority of major TSP sources are concentrated in the eastern quadrant of Harris County. However, in spite of the large number of TSP sources in this quadrant, only the two monitors identified above, with 37 percent and 33 percent probability of exceeding the standards, respectively, were identified in the PM_{10} nonattainment probability calculation. The probability of other monitors exceeding the PM_{10} NAAQS ranges from 0 to 4 percent. Therefore, it is the determination of the TACB that the PM_{10} Group II area in Harris County should be limited to a portion of the current Harris 1 TSP nonattainment area. (For area boundary description, see Appendix C.)

Dallas County: In order to refine the boundaries of the PM_{10} Group II area in Dallas County, all TSP and PM_{10} monitoring sites were plotted on a county map (see Appendix A). Using the probability guidelines and TSP data for 1984-1986, estimates for PM_{10} nonattainment were calculated (see Appendix B). There were 30 TSP monitors in Dallas County in the period 1984-1986, only two of which had an estimated PM_{10} exceedance probability of greater than 20 percent and less than 95 percent. The Sargent Road site (SAROAD #1310064H01) showed 56 percent probability and the Toronto Street site (SAROAD 1310067H01) showed 30 percent probability of exceeding the 4-hour PM_{10} NAAQS. The probability of any other site exceeding the NAAQS was less than 10 percent. The one PM_{10} monitor operated in Dallas County since 1985 (SAROAD #1310049H01) has not shown a violation of the PM_{10} standards. The highest 4-hour PM_{10} values were 133 ug/m^3 and 106 ug/m^3 in 1985 and

986, respectively. The annual arithmetic means for the two years were 42 ug/m^3 and 38 ug/m^3, respectively.

A plot of the major TSP sources in the county shows that the majority of the stationary sources are concentrated within Loop 12. The two monitors in Dallas County (Sargent Road and Toronto Street) that have a greater than 20 percent probability of exceeding the PM_{10} NAAQS are inside Loop 12 and have been sited to observe impacts from specific sources. Based on this information, the TACB is limiting the Group II area to a zone enclosed by Loop 12 in the City of Dallas (see Appendix C for area boundaries).

Nueces County: There were a total of 10 TSP monitors in Nueces County during the period 1984-1986. Only four of these monitors had three complete years of data. The highest probability estimate for any of these four sites using the probability guideline was 2 percent. However, a site at 1111 Navigation (SAROAD #1150020G01) with one year of complete data showed a 49 percent probability of not attaining the PM_{10} 24-hour standard (see Appendix B). Since 1985, the TACB has operated two PM_{10} monitors in Nueces County, Leopard Street (SAROAD #1150012F01) and Navigation (SAROAD #1150020F01). In 1985, the monitor at Navigation recorded a 24-hour PM_{10} value of 170 ug/m^3, which is above the NAAQS. However, there were no additional violations at this site in 1986 or 1987. Therefore, the calculated expected exceedance for three years will be 0.33. An average of one exceedance or less per year over a three-year period is not considered a NAAQS violation. The highest 24-hour value recorded at the same site in 1986 was 102 ug/m^3. The highest 24-hour values recorded at Leopard Street were 90 ug/m^3 and 87 ug/m^3 for 1985 and 1986, respectively. The annual arithmetic means were 39 ug/m^3 and 33 ug/m^3 at Navigation and 30 ug/m^3 and 28 ug/m^3 at Leopard Street.

All the TSP and PM_{10} monitors are plotted on the Nueces County map (see Appendix A). Additionally, all major TSP emission sources are plotted on the same map. As can be seen from the map, the TSP emission sources are in the Port Terminal area of the City of Corpus Christi. The ambient monitor that has observed the greater than 20 percent probability of exceeding the PM_{10} NAAQS and the PM_{10} monitor that recorded greater than NAAQS value in 1985 are also located in this area. Based on this information, the TACB is limiting the Group II area boundaries in Nueces County to the Port Terminal area of the City of Corpus Christi (see Appendix C for a description of area boundaries).

Lubbock County: There was only one TSP monitor during 1984-1986 in Lubbock County. It was located in the center of downtown Lubbock. A PM_{10} monitor has been operational at this site since 1985. The probability estimates for nonattainment of PM_{10} NAAQS using three years of TSP data showed a 60 percent probability of exceeding PM_{10} NAAQS (see Appendix B). The highest 24-hour PM_{10} concentration recorded at this site was 74 ug/m^3 in 1985 and 209 ug/m^3 in 1986. The 209 ug/m^3 value recorded on March 9, 1986 and the second highest value (145 ug/m^3) recorded on March 11, 1986 have been found to be dust storm days and they are flagged as exceptional event days.* Therefore, we do not plan to use these days to determine compliance with the PM_{10} NAAQS. The next highest 24-hour PM_{10} value recorded in Lubbock was 99 ug/m^3. The annual arithmetic means were 36 ug/m^3 and 33 ug/m^3 in 1985 and 1986, respectively.

*Guideline on the Identification and Use of Air Quality Data Affected by Exceptional Events, EPA-450/4-86-007.

There are few major TSP sources in Lubbock County. They are located within Loop 289 (see Appendix A). Most of the county is rural in nature with agricultural activities dominating. Therefore, the TACB is proposing the area enclosed by Loop 289 as the PM_{10} Group II area in Lubbock County (see Appendix C for a description of area boundaries).

d. PM_{10} Monitoring Commitments

Harris County: In accordance with 40 CFR Part 58.13 requirements, ambient PM_{10} data will be collected in the Harris County Group II area at the expected maximum concentration site (SAROAD #2560035H01) at a monitoring frequency of every other day. Based on Table 4 in 40 CFR Part 58, four to eight National Ambient Monitoring Station (NAMS) sites for PM_{10} are recommended for Houston. The TACB proposes to operate five additional PM_{10} monitors in Harris County at a monitoring frequency of every sixth day. The PM_{10} monitoring will start no later than August 1, 1988. The location of the monitors and the scheduled date of operation are shown in Table 2.

Dallas County: The probability calculations have identified Sargent Road site (SAROAD #1310064H01) and Toronto Street site (SAROAD #1310067H01) in Dallas County as expected maximum concentration sites for PM_{10}. Both these sites were established to assess source impacts for lead. The Toronto Street site was shut down on May 31, 1987 with approval from EPA. (See letter from Mr. Robert E. Layton to Mr. Eli Bell on July 17, 1987). The Sargent Road site was discussed in a meeting in Dallas on February 11, 1988 with the TACB, the City of Dallas, and the EPA Monitoring Group. An inspection of the site showed that the site is inappropriate for determining particulate concentrations because of noncompliance with the applicable siting criteria and localized construction activity. Therefore, the TACB is proposing PM_{10} monitoring

Table 2.

MONITORING SCHEDULE FOR PM_{10} GROUP II SIPs

County	SAROAD Monitor Number	Location of Monitor	Frequency of Monitoring	Starting Date
Dallas	451310018H01	3049 Morrell Avenue	Two Day	8/1/88
	451310020H01	4607 S. Lancaster	Six Day	8/1/88
	451310029H01	8401 Douglas	Six Day	8/1/88
	451310050H01	717 S. Akard (Convention Center)	Six Day	8/1/88
Harris	452330024F01	Aldine (CAMS 8)	Six Day	Operating
	452560034F01	Mae Drive (CAMS 1)	Six Day	Operating
	452560035H01	Clinton Drive	Two Day	8/1/88
	452560036H02	Crawford & Polk	Six Day	8/1/88
	452560054H01	702 Kress	Six Day	8/1/88
	454060002F01	Pasadena (Police Academy)	Six Day	8/1/88
Lubbock	453340001F01	Central F. S.	Two Day	Operating
Nueces	451150002F01	1111 Navigation	Two Day	Operating

PM10 Group III SIPs

The PM_{10} monitoring for all areas other than Group I and Group II shall begin not later than August 1, 1989, as committed by the State and approved by the U. S. Environmental Protection Agency in the SLAMS and NAMS networks.

ith every other day frequency at the Morrell Avenue site (SAROAD #130018H02). This site is located two blocks north of the Sargent Road site and within the defined Group II area. Based on Table 4 in 40 CFR Part 58, between two and four PM_{10} NAMS sites are recommended in Dallas County. Therefore, three additional NAMS sites with every sixth day frequency will be established. Monitoring at NAMS sites will begin as soon as possible, but not later than August 1, 1988. Monitoring locations and the scheduled date of operation are shown in Table 2.

Nueces County: Based on Table 4 in 40 CFR Part 58, one PM_{10} NAMS site is recommended in Nueces County. Therefore, the expected maximum concentration site at Navigation (SAROAD #1150020F01), which is a TSP NAMS site will be selected to operate the PM_{10} monitor on an every other day schedule. The change of monitoring frequency from every sixth day to ery other day will be established as soon as possible, but not later than August 1, 1988. The monitoring location and the schedule of operation are shown in Table 2.

Lubbock County: Based on Table 4 in 40 CFR Part 58, one PM_{10} NAMS site is recommended in Lubbock County. Therefore, the existing PM_{10} monitoring site at the Central Fire Station (SAROAD #3340001F01), which is a TSP NAMS site, will be selected to operate the PM_{10} monitor on an every other day schedule. The monitoring location and schedule of operation are shown in Table 2.

All monitoring for PM_{10} will be performed in accordance with procedures established in 40 CFR Part 53, "Ambient Air Monitoring Reference and Equivalent Methods," and Part 58 "Ambient Air Quality Surveillance for Particulate Matter."

e. Other Commitments for PM_{10} Group II Areas

With regard to the four PM_{10} Group II areas in Texas discussed above, the TACB makes these commitments.

1) The TACB will gather ambient PM_{10} data, at least to an extent consistent with minimum EPA requirements and guidance specified in 40 CFR Parts 50, 51, 52, 53, 58, PM_{10} SIP Development Guidance, and other applicable EPA guidance documents.

2) The state will analyze and verify the ambient PM_{10} data and report 24-hour PM_{10} NAAQS exceedances to the Region 6 Office within 45 days of each exceedance.

3) When an appropriate number of verifiable 24-hour NAAQS exceedances becomes available (see Section 2.0 of the PM_{10} SIP Development Guideline) or when an annual arithmetic mean (AAM) above the level of the annual PM_{10} NAAQS becomes available, the TACB will acknowledge that a nonattainment problem exists and immediately notify the Region 6 Office.

4) Within 30 days of the notification referred to in (3) above, or within 37 months of promulgation, whichever comes first, the TACB will determine whether the measures in the existing SIP assure timely attainment and maintenance of the primary PM_{10} standards, and will notify the Region 6 Office.

5) In addressing the requirements in (4) above, the TACB shall consider the following factors in determining the adequacy of the existing SIPs:

a) Air quality data -- Time is allotted for up to 3 years of PM_{10} data to be collected if an NAAQS is not

violated sooner. At the end of that time, the available PM_{10} data shall be examined to determine if attainment can be demonstrated in accordance with Appendix K of 40 CFR Part 50 or the Guideline on Exceptions to Data Requirements for Determining Attainment of Particulate Matter Standards in the absence of adequate PM_{10} data.

b) The present control strategy -- The existing control strategy shall be evaluated to determine if it is fully implemented; if it is adequately enforced; if start-up, shutdown, and malfunction regulations are adequate to prevent circumvention of the emission limitations; and it can adequately attain and maintain the PM_{10} NAAQS if the above conditions are met. The evaluation shall include the use of dispersion and receptor modeling techniques where appropriate.

c) Emissions data -- The emission inventories shall be evaluated to determine if emissions can increase significantly because actual emissions are far below allowable emissions for the area, if sources with operating permits are not operating or are operating at reduced capacity and if "banked" emissions could impact future air quality.

6) Within 6 months of the notification referred to in (4) above, the TACB will adopt and submit to EPA a PM_{10} control strategy that assures attainment as expeditiously as practicable but no later than 3 years from approval of the committal SIP. As provided in Section 110(e) of the FCAA, the TACB may request an additional 2 years to reach attainment for any Group II area where monitoring data has demonstrated a nonattainment situation.

Additionally, the TACB will collect and submit to EPA a PM_{10} emissions inventory from all Group II areas by August 31, 1990. This will provide both actual and allowable emissions

in each area. A schedule of PM_{10} emissions inventory submittal is provided in Table 3. The existing control strategies for particulate matter in TACB Regulation I will be retained until a need for more stringent controls is indicated. Applications for new or modified sources of PM_{10} will be reviewed in accordance with PSD rules.

All the above referenced commitments will assure the maintenance of PM_{10} NAAQS in the designated Group II areas.

f. PM_{10} Group III Areas

All areas in Texas except those designated as Group I or Group II are considered Group III for the PM_{10} NAAQS. The designation of these areas as Group III means that there is a strong probability that no exceedances of the PM_{10} NAAQS will be recorded and the existing particulate matter SIP measures will maintain the PM_{10} NAAQS. In accordance with TACB General Rule 101.21, the new PM_{10} NAAQS will be enforced throughout all parts of Texas. Additionally, the TACB has received authorization and will administer technical and administrative review of new source permit applications under the PM_{10} PSD program. The TACB is also in the process of adopting a PSD SIP revision incorporating federal PM_{10} PSD requirements by reference. When EPA approves a PSD SIP for Texas and grants full delegation of the PSD program, PM_{10} review will continue as part of the PSD SIP. Finally, the nonattainment new source review procedures will be continued in TSP nonattainment areas for permit applicants with particulate matter emission potential, until such time as those areas can be redesignated.

Although calculations based on the past three years of ambient TSP data from many of these areas have indicated very low probability of exceeding the PM_{10} NAAQS, the TACB will implement every sixth day PM_{10} monitoring in representative

Table 3.

EMISSION INVENTORY SCHEDULE FOR PM_{10}

The Texas Air Control Board shall conduct and prepare an emission inventory for PM_{10} Group I, II, and III areas according to the procedures and guidelines provided in the PM_{10} SIP Development Guidelines (also see Memorandum of October 2, 1987 from Darryl D. Tayler to Regional offices) and the schedule below.

SIP Areas	EI Questionnaire Mailout	Due date for Submission
Group I	by October 8, 1987	March 25, 1988
Group II	by October 1, 1989	August 31, 1990
Group III	by October 1, 1990	No submittal required

locations of the state as resources permit. Monitoring at selected representative locations will start no later than August 1, 1989, and the network will be expanded as additional resources become available.

The existing SIP for particulate matter and the preconstruction and PSD review measures described above are expected to maintain the PM_{10} levels below the standard in all areas designated as Group III in Texas. If and when levels above the standards are recorded, the TACB will take corrective action as required by federal regulations.

Appendix A

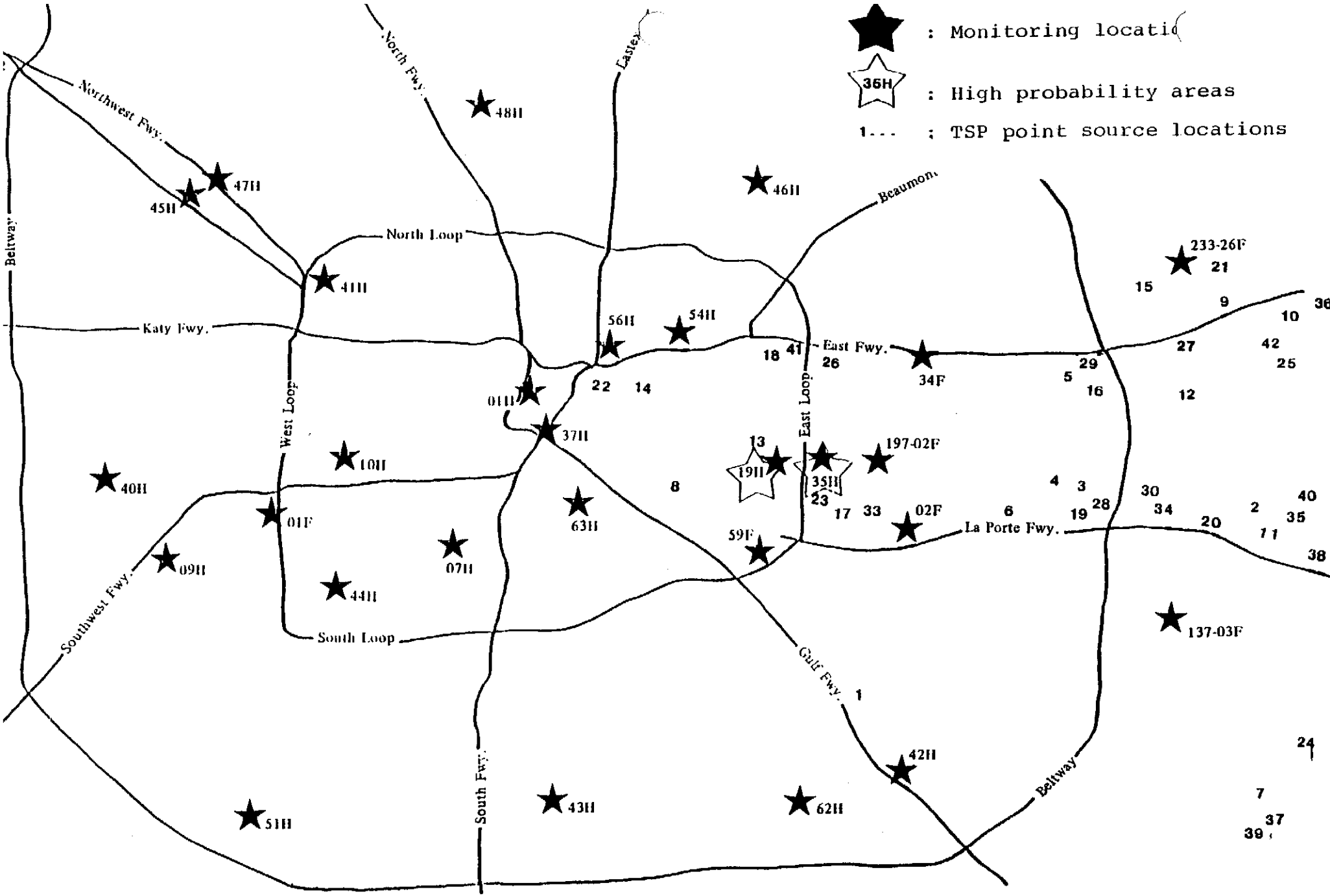
TSP and PM_{10} Monitoring Locations and Major TSP Stationary Emission Sources

Appendix A

MAJOR TSP SOURCES IN PM10 GROUP II AREA IN HARRIS COUNTY
ED ON DATA RETRIEVED FROM TACB POINT SOURCE DATA BASE ON 10/17/87)

UNTNO	COMPANY	LOCATION	EMISSIONS (TONS/YEAR)
34U	MOBIL MINING AND MINERALS CC	2001 JACKSON ROAD	2252.3
56F	SHELL CHEMICAL COMPANY	HWY 225 W.OF BATTLEGROUND RD	1920.9
75D	CROWN CENTRAL PETROLEUM CORP	111 RED BLUFF ROAD	1648.1
29K	SIMPSON PAPER COMPANY	N. SHAVER ST @ WASHBURN TUNN	1211.8
92I	BROWN AND ROOT MARINE INC	14035 INDUSTRIAL ROAD	970.8
48L	LYONDELL PETROCHEMICAL CO	12000 LAWNDALE	886.2
26Q	CELANESE CHEMICAL COMPANY INC	9502 BAYPORT RD	885.9
00B	GULF COAST PORTLAND CEMENT	6203 INDUSTRIAL WAY	861.7
74D	CHAMPION INTERNATIONAL	11611 5TH STREET	778.2
32Q	EXXON COMPANY USA	2800 DECKER DRIVE	657.0
59W	SHELL OIL COMPANY	HWY 225 OFF BATTLEGROUND RD	598.3
22B	CARGILL INCORPORATED	16150 PENINSULA BLVD	537.5
51C	LONE STAR INDUSTRIES INC*	402 CONCRETE STREET	3.0
58S	GENERAL PORTLAND INCORPORATED	501 N. YORK	485.4
13B	LYONDELL PETROCHEMICAL CO	CHANNELVIEW	456.0
12J	PORT OF HOUSTON AUTHORITY	3300 PENN CITY ROAD	440.0
10C	HILL PETROLEUM INC	9701 MANCHESTER	408.1
50M	OWENS-CORNING FIBERGLAS	8360 MARKET STREET RD	399.5
56H	PHILLIPS 66 COMPANY	JEFFERSON ROAD	347.9
2T	ROHM & HAAS TEXAS INC	HIGHWAY 225	329.1
4V	COGEN LYONDELL INC	WALLISVILLE RD 1MI E.SHELDON	323.8
3P	GENERAL FOODS CORPORATION	3900 HARRISBURG BLVD	314.3
1S	IDEAL BASIC INDUSTRIES INC*	OFF 9600 CLINTON DRIVE	36.6
9M	BAYOU COGENERATION PLANT	11777 BAYOU AREA BLVD	294.7
8H	EXXON CHEMICAL AMERICAS	3525 DECKER DRIVE	294.1
0V	CHEVRON CHEMICAL COMPANY	9500 IH-10 EAST	254.3
6T	SOUTHWESTERN BARGE FLEET SERV	18310 MARKET STREET	240.0
5N	ETHYL CORPORATION	1000 N. SOUTH STREET	238.0
8G	PENNWALT CORPORATION	2231 HADEN ROAD	224.1
1H	UNION EQUITY COOPERATIVE	2631 TIDAL ROAD	200.8
3H	CECIL M HOPPER CONTRACTOR INC	ACD 23018	195.0
4A	CAMERON IRON WORKS COMPANY	HWY.290	189.1
2F	UNITED STATES GYPSUM CO	1201 MAYO SHELL ROAD	172.3
2D	OCCIDENTAL ELECTROCHEMICALS	TIDAL ROAD	171.2
3R	ROLLINS ENVIRONMENTAL SERVICES	2027 BATTLEGROUND ROAD	160.6
2M	J M HUBER CORPORATION	9300 NEEDLEPOINT	157.5
9O	CAPITAL COGENERATION CO. LTD	9602 BAYPORT RD	156.2
9K	E I DU PONT DE NEMOURS & CO	11701 STRANG RD	146.5
1C	CALGON CORP. SUE MERCK & CO	9640 BAYPORT BLVD	137.2
1G	U S INDUSTRIAL CHEMICALS CO	1515 MILLER CUT-OFF RD	124.5
1H	ANHEUSER BUSH INCORPORATED	775 GELLHORN DRIVE	123.6
Q	STAUFFER CHEMICAL COMPANY	3439 PARK STREET	107.0
		TOTAL EMISSIONS	20339.1

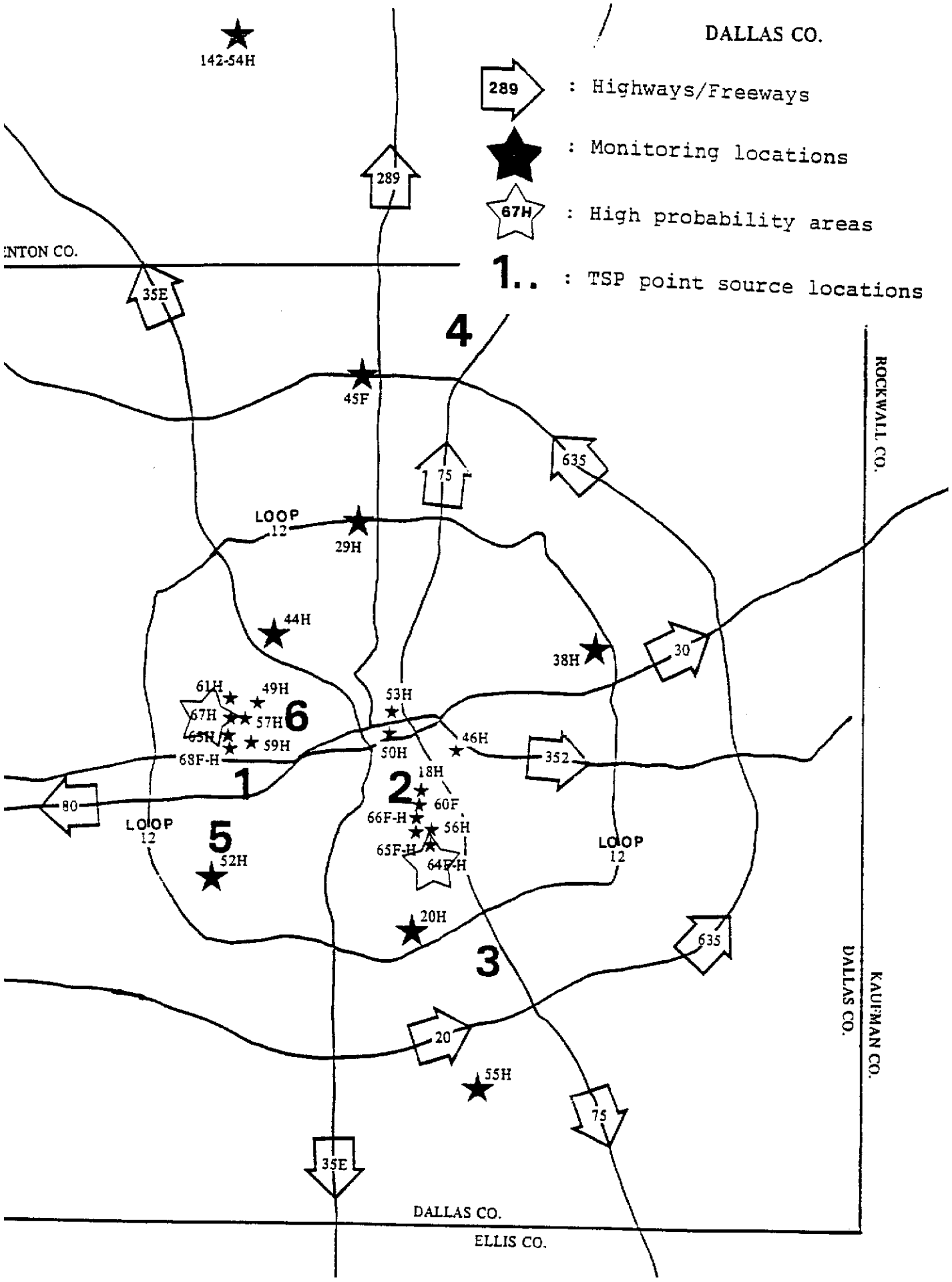
* MANUFACTURING OPERATIONS AT THESE FACILITIES HAVE BEEN CURTAILED


: Monitoring locati
36H : High probability areas
1... : TSP point source locations
Northwest Fwy.
North Fwy.
Eastex
Beltway
North Loop
Katy Fwy.
West Loop
East Loop
East Fwy.
Beaumont
La Porte Fwy.
Southwest Fwy.
South Loop
South Fwy.
Gulf Fwy.
Beltway
48H
47H
45H
46H
41H
56H
54H
01H
37H
10H
40H
01F
09H
44H
07H
63H
19H
35H
197-02F
34F
02F
59F
233-26F
137-03F
42H
43H
62H
51H

Appendix A

MAJOR TSP SOURCES IN PM10 GROUP II AREA IN DALLAS COUNTY
ED ON DATA RETRIEVED FROM TACB POINT SOURCE DATA BASE ON 10/17/87)

)UNTNO	COMPANY	LOCATION	EMISSIONS (TONS/YEAR)
)55F	GENERAL PORTLAND INC	3333 FORT WORTH AVENUE	1106.6
?99P	DIXIE METAL COMPANY	3030 MCGOWEN	506.4
154E	OCCIDENTAL CHEMICAL CORPORATION	8800 S. CENTRAL EXPRESSWAY	288.1
186G	ROCKWELL INTERNATIONAL CORP	1200 N. ALMA ROAD	142.4
741V	SOUTHLAND CORPORATION	2841 PIERCE STREET	111.8
378S	GAF CORPORATION	2600 SINGLETON	101.3
		TOTAL EMISSIONS	2256.6

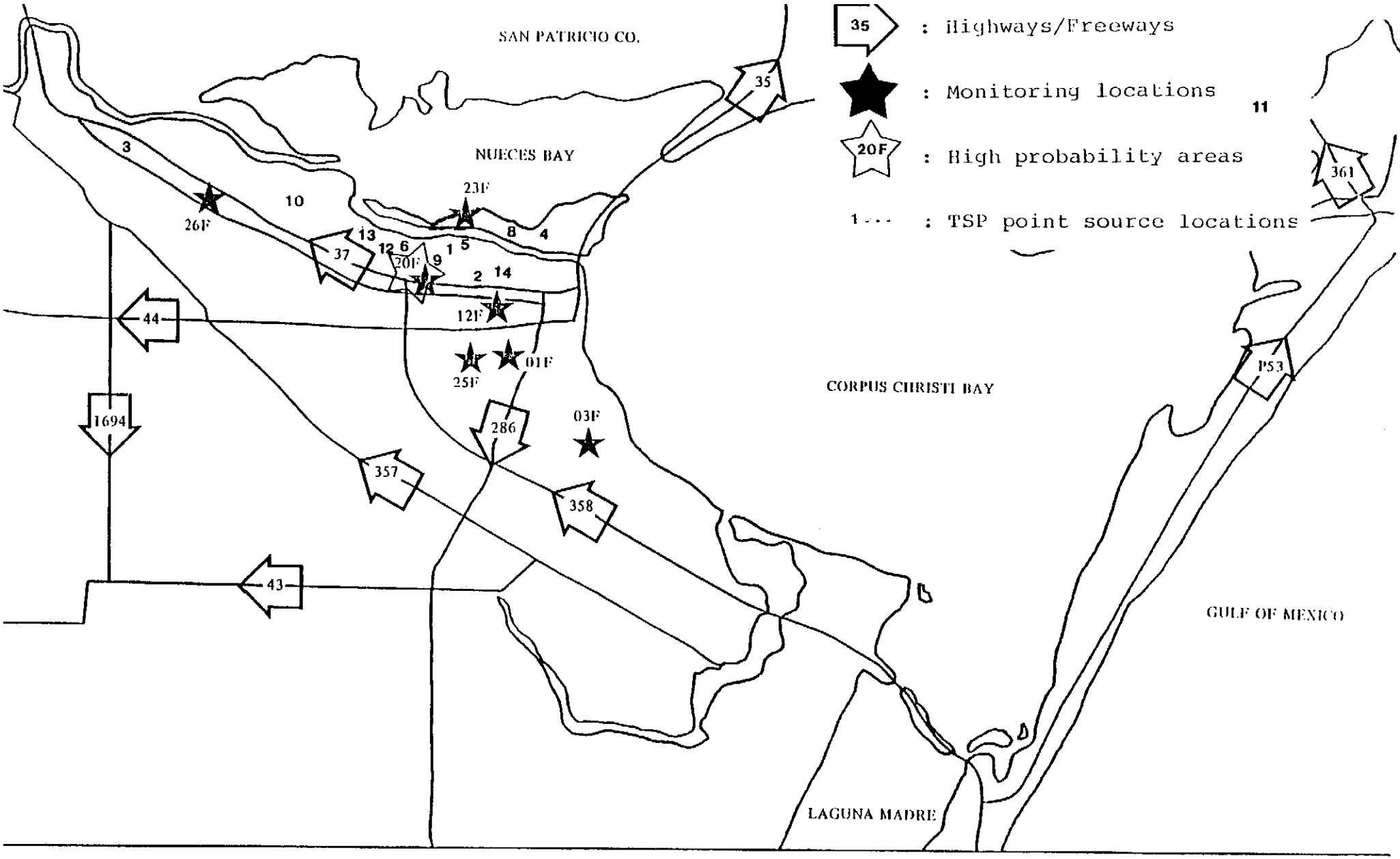

DALLAS CO.
289 : Highways/Freeways
: Monitoring locations
67H : High probability areas
1.. : TSP point source locations
142-54H
289
ENTON CO.
35E
4
45F
635
75
LOOP 12
29H
44H
38H
30
61H
49H
67H
57H
6
65H
59H
68F-H
53H
50H
46H
352
1
2
18H
60F
66F-H
56H
65F-H
64F-H
80
LOOP 12
5
52H
LOOP 12
20H
3
635
20
55H
75
35E
DALLAS CO.
ELLIS CO.
ROCKWALL CO.
KAUFMAN CO.
DALLAS CO.

Appendix A

MAJOR TSP SOURCES IN PM10 GROUP II AREA IN NUECES COUNTY
ED ON DATA RETRIEVED FROM TACB POINT SOURCE DATA BASE ON 10/17/87)

UNTNO	COMPANY	LOCATION	EMISSIONS (TONS/YEAR)
23G	CENTEX CEMENT CORPORATION*	1800 NAVIGATION BLVD	0.0
27V	CHAMPLIN REFINING COMPANY	LAWRENCE DRIVE	736.7
51B	CORPUS CHRISTI PETROCHEMICAL	1501 MCKINZIE BLVD	699.8
52W	PORT OF CORPUS CHRISTI AUTHOR	CORPUS CHRISTI SHIP CHANNEL	484.6
43A	COASTAL REFINING & MARKETING	1300 CANTWELL LANE	269.9
07E	ASARCO INCORPORATED*	5500 UPRIVER ROAD	0.0
22I	CELANESE ENGINEERING RESINS	1M S. OF BISHOP ON US HWY 77	220.2
11N	NL BAROID INDUSTRIES INC	NAVIGATION BLVD	203.9
04F	AMERICAN CHROME AND CHEMICALS	BUDDY LAWRENCE DRIVE	192.3
22D	KOCH REFINING COMPANY	SUNTIDE AND UPRIVER RD	176.1
19U	BROWN & ROOT INCORPORATED	1 M W. OF TOWN ON HWY 361	163.0
05D	INTERSTATE GRAIN PORT TERMINAL	5700 UPRIVER ROAD	162.1
12G	VALERO REFINING COMPANY	5900 UPRIVER ROAD	573.7
20H	SOUTHWESTERN REFINING COMPANY	1700 NUECES BAY BOULEVARD	355.8
		TOTAL EMISSIONS	4238.1

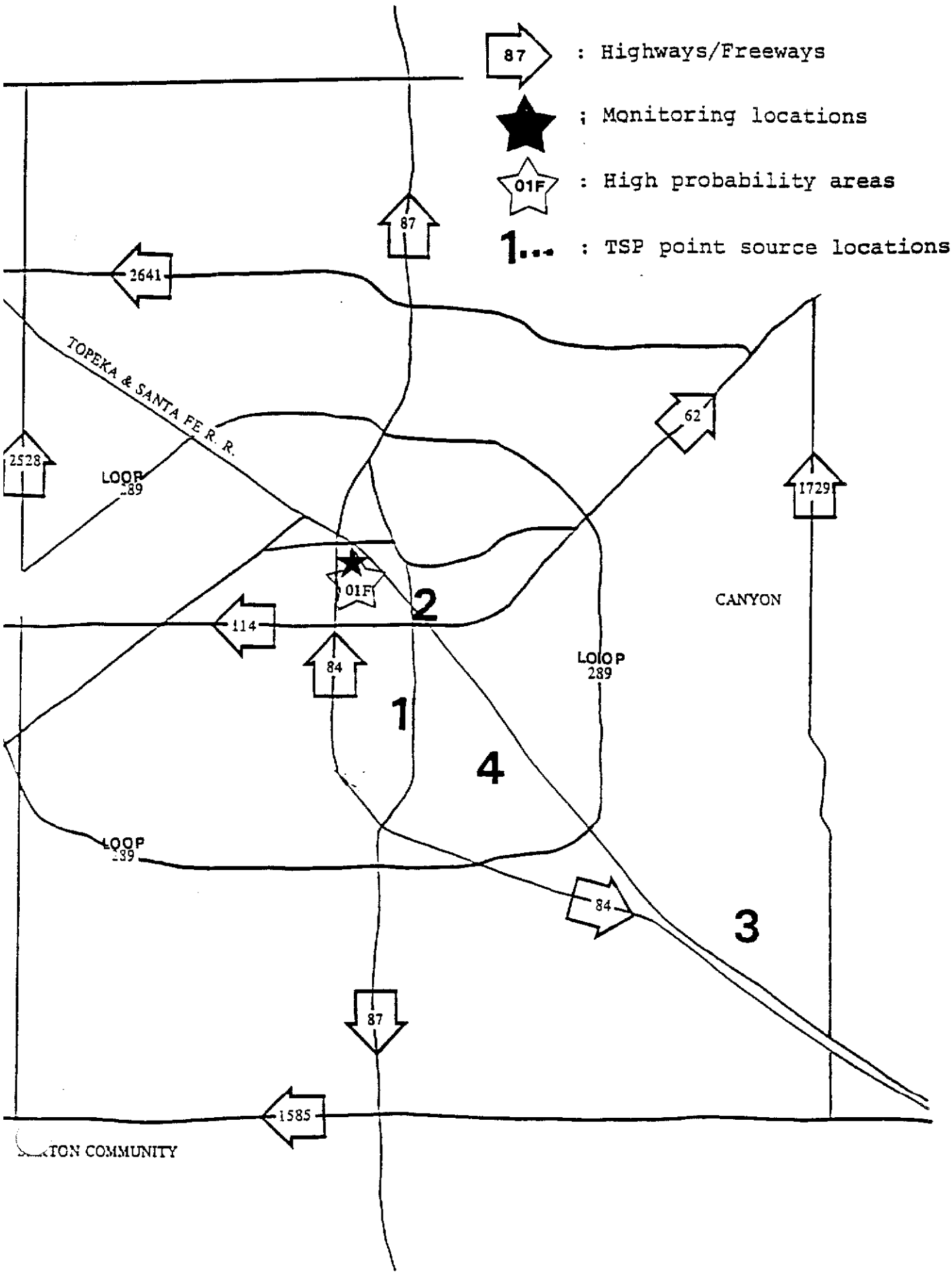
* PLANT HAS BEEN SHUT DOWN AND/OR NO LONGER A MAJOR SOURCE


35 : Highways/Freeways
: Monitoring locations
20F : High probability areas
1--- : TSP point source locations
SAN PATRICIO CO.
NUECES BAY
CORPUS CHRISTI BAY
LAGUNA MADRE
GULF OF MEXICO
35
3
10
26F
23F
37
13
12
6
20F
9
1
5
8
4
2
14
12F
44
25F
01F
1694
286
03F
357
358
43
11
361
P53

Appendix A

MAJOR TSP SOURCES IN PM10 GROUP II AREA IN LUBBOCK COUNTY
SED ON DATA RETRIEVED FROM TACB POINT SOURCE DATA BASE ON 10/17/87)

OUNTNO	COMPANY	LOCATION	EMISSIONS (TONS/YEAR)
066U	PLAINS COOPERATIVE OIL MILL	2901 AVENUE A	1189.6
052I	ARCHER DANIELS MIDLAND CO	17TH & AVE A	240.3
772Q	WESTERN PAVERS INCORPORATED	TWO MILES S. OF MEADOW	127.5
002A	PAYMASTER OIL MILL CO	2300 EAST 50TH STREET	108.8
		TOTAL EMISSIONS	1666.2


LUBBOCK CO.
87 : Highways/Freeways
: Monitoring locations
01F : High probability areas
1... : TSP point source locations
87
2641
TOPEKA & SANTA FE R. R.
2528
LOOP
289
62
1729
01F
2
CANYON
114
84
LOOP
289
1
4
LOOP
289
84
3
87
1585
TON COMMUNITY

Appendix B

Probability Estimates of Nonattainment of PM_{10} NAAQS Based on 1984-1986 TSP Data

Appendix B

PROBABILITIES OF EXCEEDING PM10 NAAQS BASED ON 1984-1986 TSP DATA

HARRIS COUNTY

SAROAD NO.	24-HOUR NAAQS	ANNUAL NAAQS	NUMBER OF SAMPLES	YEARS WITH COMPLETE QTRS.*	YEARS OF MONITORING
2560035H01	0.371	0.379	172	3	3
2560019H01	0.327	0.094	172	3	3
2560048H01	0.015	0.020	181	3	3
2560054H01	0.003	0.040	179	3	3
2560045H01	0.003	0.010	147	1	2
2560056H01	0.002	0.022	169	3	3
2560001H01	0.001	0.017	168	2	2
2560043H01	0.001	0.003	178	3	3
1970002F01	0.000	0.033	178	3	3
2560063H01	0.000	0.031	114	2	2
2560037H02	0.000	0.022	140	1	2
2560034F01	0.000	0.019	168	3	3
2330031F01	0.000	0.017	57	1	1
2560059H01	0.000	0.016	53	1	1
4060002F01	0.000	0.012	177	3	3
2330026F01	0.000	0.008	171	1	3
2560028F01	0.000	0.008	60	1	1
2560046H01	0.000	0.007	177	3	3
2560009H01	0.000	0.006	172	3	3
2560062H01	0.000	0.006	147	1	2
1370001F01	0.000	0.001	61	1	1
2330024F01	0.000	0.001	178	3	3
2560006H01	0.000	0.000	24	0	0.5
2560042H01	0.000	0.000	178	3	3
1370003F01	0.000	0.000	58	1	1
2560010H01	0.000	0.000	173	3	3
2560041H01	0.000	0.000	182	3	3
2560044H01	0.000	0.000	169	3	3
2560007H01	0.000	0.000	167	2	3
2560051H01	0.000	0.000	171	3	3
2560040H01	0.000	0.000	172	3	3
4060008F01	0.000	0.000	56	1	1

* = PROBABILITY CALCULATIONS REQUIRE AT LEAST 12 SAMPLES IN EACH QUARTER FOR A YEAR TO BE CONSIDERED VALID

PROBABILITIES OF EXCEEDING PM10 NAAQS BASED ON 1984-1986 TSP DATA

DALLAS COUNTY

SAROAD NO.	24-HOUR NAAQS	ANNUAL NAAQS	NUMBER OF SAMPLES	YEARS WITH COMPLETE QTRS.*	YEARS OF MONITORING
1310064H01	0.561	0.046	679	3	3
1310067H01	0.304	0.037	825	3	3
1310064F01	0.110	0.030	342	3	3
1310066F01	0.073	0.009	352	3	3
1310057H01	0.027	0.030	796	3	3
1310068F01	0.017	0.045	84	1	1
1310059H01	0.014	0.012	914	3	3
1310068H01	0.002	0.000	39	0	0.5
1310049H01	0.000	0.036	160	1	3
1310050H01	0.000	0.033	148	1	1
1310044H01	0.000	0.028	106	1	2
1310061H01	0.000	0.023	158	1	2
1310057H01	0.000	0.021	143	1	1
1310029H01	0.000	0.019	166	2	3
1310018H02	0.000	0.018	163	1	3
1310046H01	0.000	0.016	182	2	3
1310056H01	0.000	0.015	155	1	2
1310063H01	0.000	0.014	721	3	3
1310060F01	0.000	0.011	360	3	3
1310065H01	0.000	0.011	689	3	3
1310066H01	0.000	0.010	670	3	3
1310067F01	0.000	0.010	129	1	2
1310020H01	0.000	0.008	173	3	3
1310065F01	0.000	0.006	351	3	3
1310038H01	0.000	0.006	162	1	3
1310063F01	0.000	0.004	145	1	1
1310059F01	0.000	0.002	146	1	1
1310045F01	0.000	0.000	170	2	3
1310052H01	0.000	0.000	163	2	3
1310069H01	0.000	0.000	26	0	0.5

* = PROBABILITY CALCULATIONS REQUIRE AT LEAST 12 SAMPLES IN EACH QUARTER FOR A YEAR TO BE CONSIDERED VALID

PROBABILITIES OF EXCEEDING PM10 NAAQS BASED ON 1984-1986 TSP DATA

NUECES COUNTY

SAROAD NO.	24-HOUR NAAQS	ANNUAL NAAQS	NUMBER OF SAMPLES	YEARS WITH COMPLETE QTRS.*	YEARS OF MONITORING
1150020G02	0.489	0.000	51	0	1
1150023F01	0.008	0.018	158	2	3
1150020F02	0.000	0.021	104	1	1
1150012F01	0.000	0.021	168	2	3
1150003F01	0.000	0.006	161	2	3
1150005G03	0.000	0.000	30	0	0.5
1150001F01	0.000	0.000	157	0	3
1150015G01	0.000	0.000	28	0	0.5
1150024G01	0.000	0.000	50	0	1
1150025F01	0.000	0.000	52	0	1

* = PROBABILITY CALCULATIONS REQUIRE AT LEAST 12 SAMPLES
IN EACH QUARTER FOR A YEAR TO BE CONSIDERED VALID

Appendix B

PROBABILITIES OF EXCEEDING PM10 NAAQS BASED ON 1984-1986 TSP DATA

LUBBOCK COUNTY

SAROAD NO.	24-HOUR NAAQS	ANNUAL NAAQS	NUMBER OF SAMPLES	YEARS WITH COMPLETE QTRS.*	YEARS OF MONITORING
3340001F01	0.595	0.048	160	1	3

* = PROBABILITY CALCULATIONS REQUIRE AT LEAST 12 SAMPLES
IN EACH QUARTER FOR A YEAR TO BE CONSIDERED VALID

Appendix C

Boundary Description for Group II Areas

Appendix C

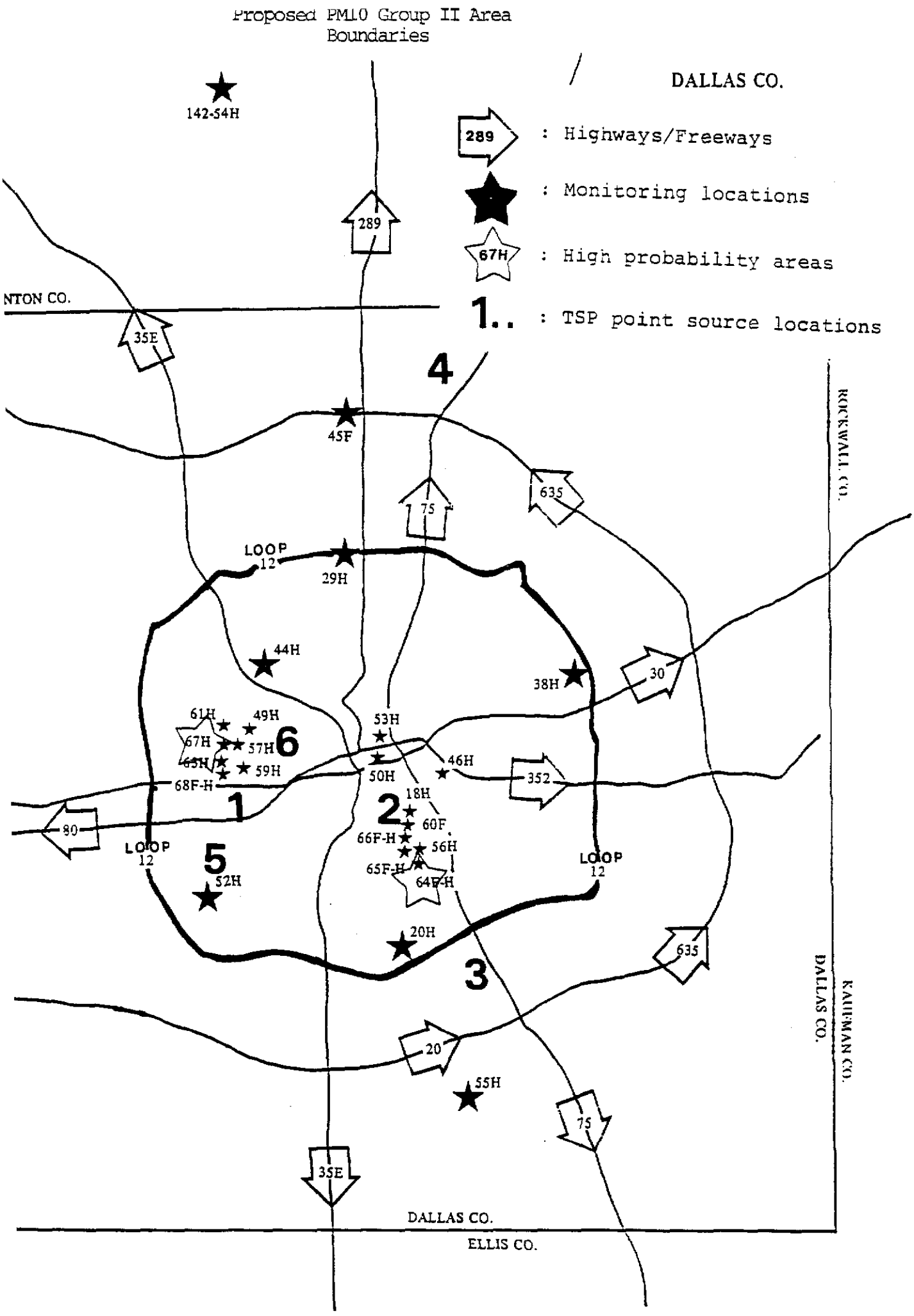
Boundary Description for Group II Areas

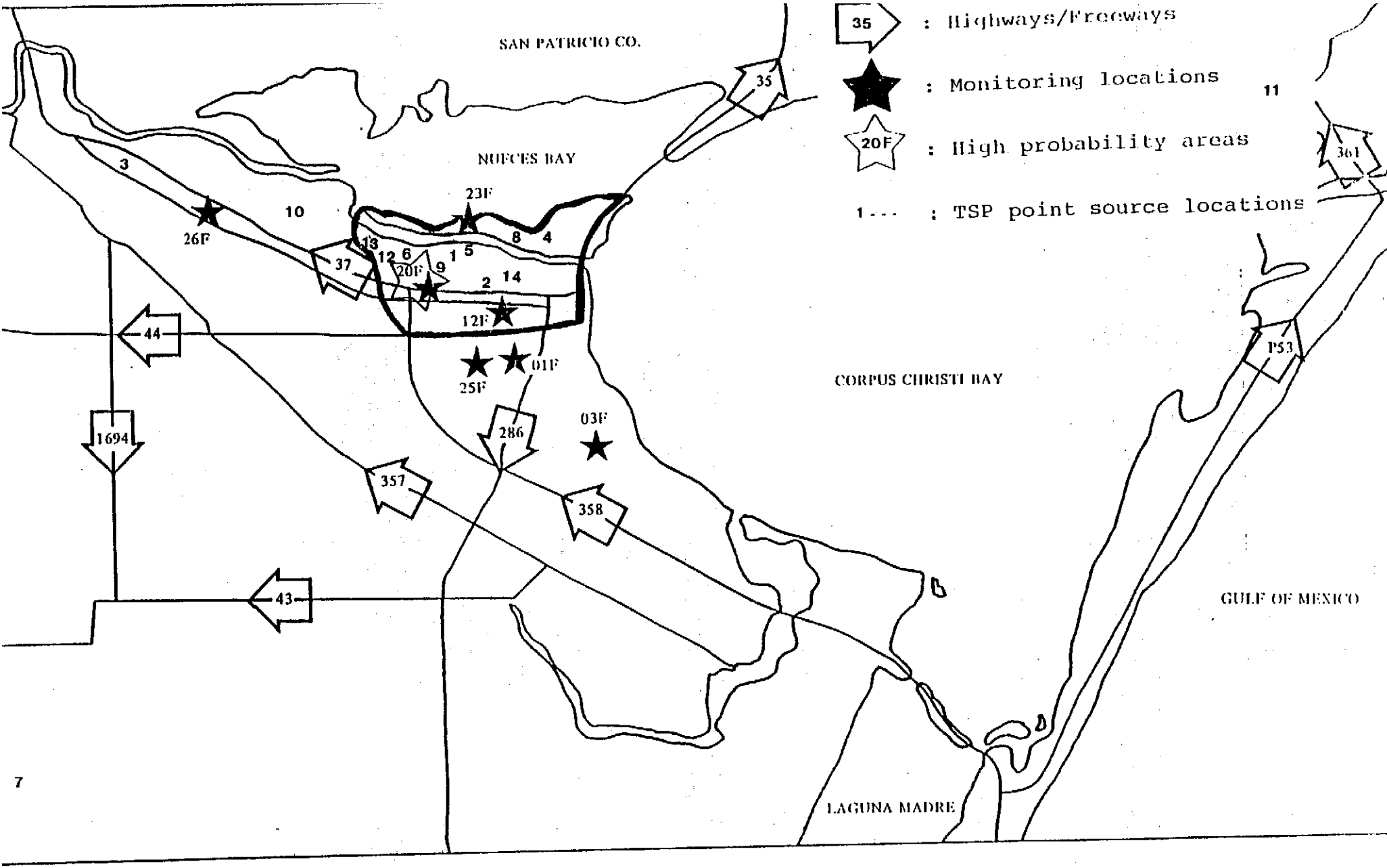
Harris County: The PM_{10} Group II area in Houston is limited to the southwestern section of the existing Harris 1 TSP non-attainment area described as follows: On the north side, a line extending eastward from Bennet Street starting at the Southern Pacific railroad tracks at the intersection of Bennet and Clinton Drive and ending at the intersection of Bennet and Legget Street; on the east side, along Legget Street southward to Clinton Drive, thence eastward to the intersection of Mayo Shell Road, and thence southward again to the Ship Channel; on the south side, westward along the south edge of the Ship Channel, including Brady Island, to East Erath Street and connecting with the Southern Pacific railroad; on the west side, northward along the Southern Pacific railroad to the intersection of Clinton Drive and Bennet Street. The area is shown on the accompanying Harris County maps.

Dallas County: That portion of the City of Dallas enclosed by Loop 12 as shown on the accompanying map.

Nueces County: A portion of the City of Corpus Christi, delimited as follows: Nueces Bay on the north, Ocean Drive on the east, Highway 44 on the south, and due north from Highway 44 at the intersection of Highway 358 to Nueces Bay on the west. The area is shown on the accompanying map.

Lubbock County: That portion of the City of Lubbock enclosed by Loop 289 as shown on the accompanying map.


Proposed PM10 Group II Area Boundaries
DALLAS CO.
289 : Highways/Freeways
: Monitoring locations
67H : High probability areas
1.. : TSP point source locations
142-54H
NTON CO.
35E
289
4
45F
635
75
LOOP 12
29H
44H
38H
30
61H
49H
67H
57H
65H
59H
6
53H
46H
50H
352
68F-H
1
18H
2
60F
66F-H
56H
65F-H
64F-H
80
LOOP 12
5
52H
LOOP 12
20H
3
635
20
55H
75
35E
DALLAS CO.
ELLIS CO.
ROCKWALL CO.
DALLAS CO.
KAUFMAN CO.


35 : Highways/Freeways
: Monitoring locations
20F : High probability areas
1--- : TSP point source locations
SAN PATRICIO CO.
NUECES BAY
CORPUS CHRISTI BAY
GULF OF MEXICO
LAGUNA MADRE
35
11
361
3
10
26F
23F
8
4
13
12
6
1
5
37
20F
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12F
44
25F
01F
P53
1694
286
03F
357
358
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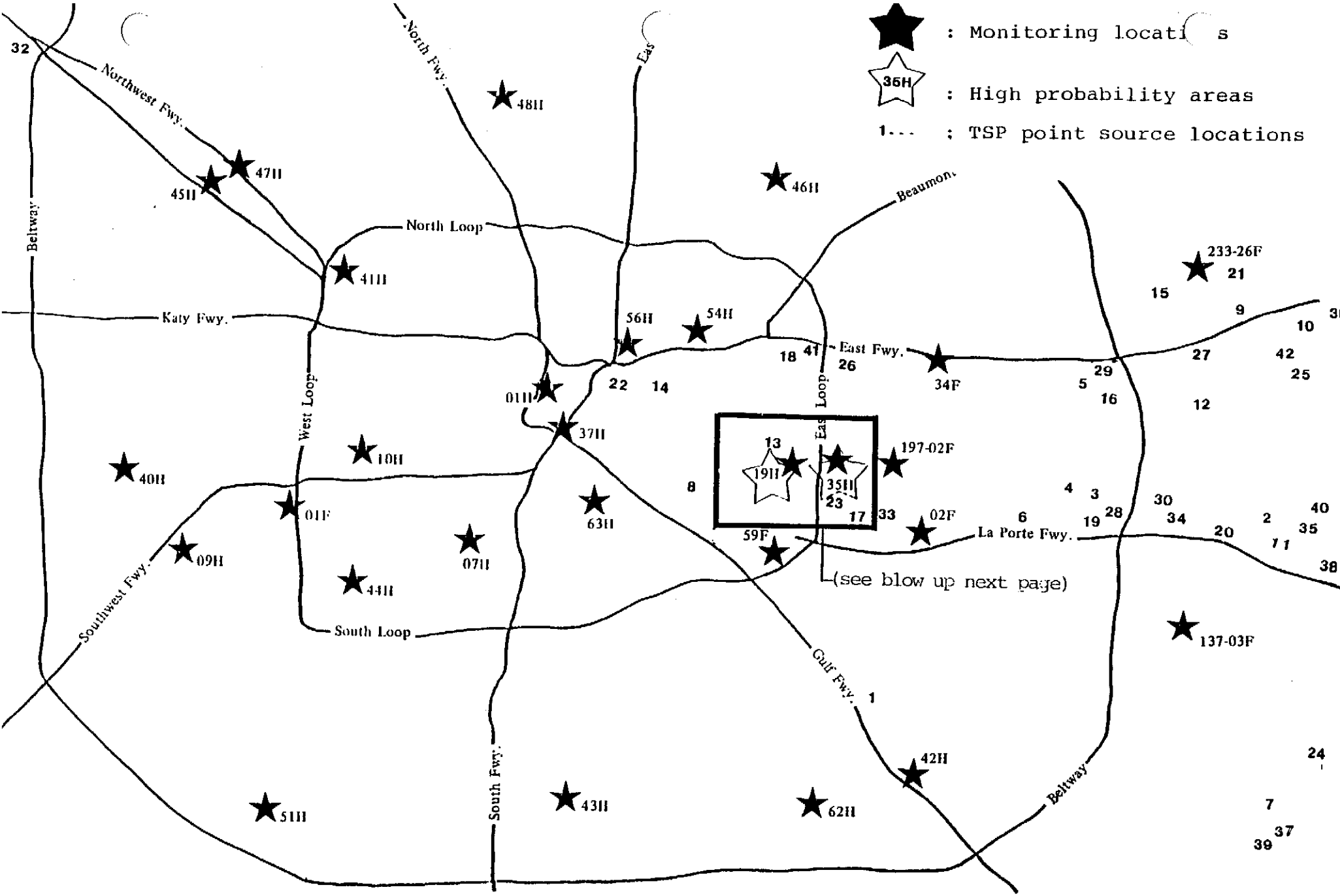
7


: Monitoring locati s
36H : High probability areas
1... : TSP point source locations
Beltway
Northwest Fwy.
North Fwy.
Eas
North Loop
Beaumon
Katy Fwy.
West Loop
East Fwy.
Loop
Eas
Southwest Fwy.
South Loop
Gulf Fwy.
South Fwy.
Beltway
La Porte Fwy.
(see blow up next page)
32
48H
45H
47H
46H
41H
56H
54H
01H
37H
34F
233-26F
10H
40H
01F
63H
19H
35H
197-02F
02F
59F
09H
07H
44H
137-03F
51H
43H
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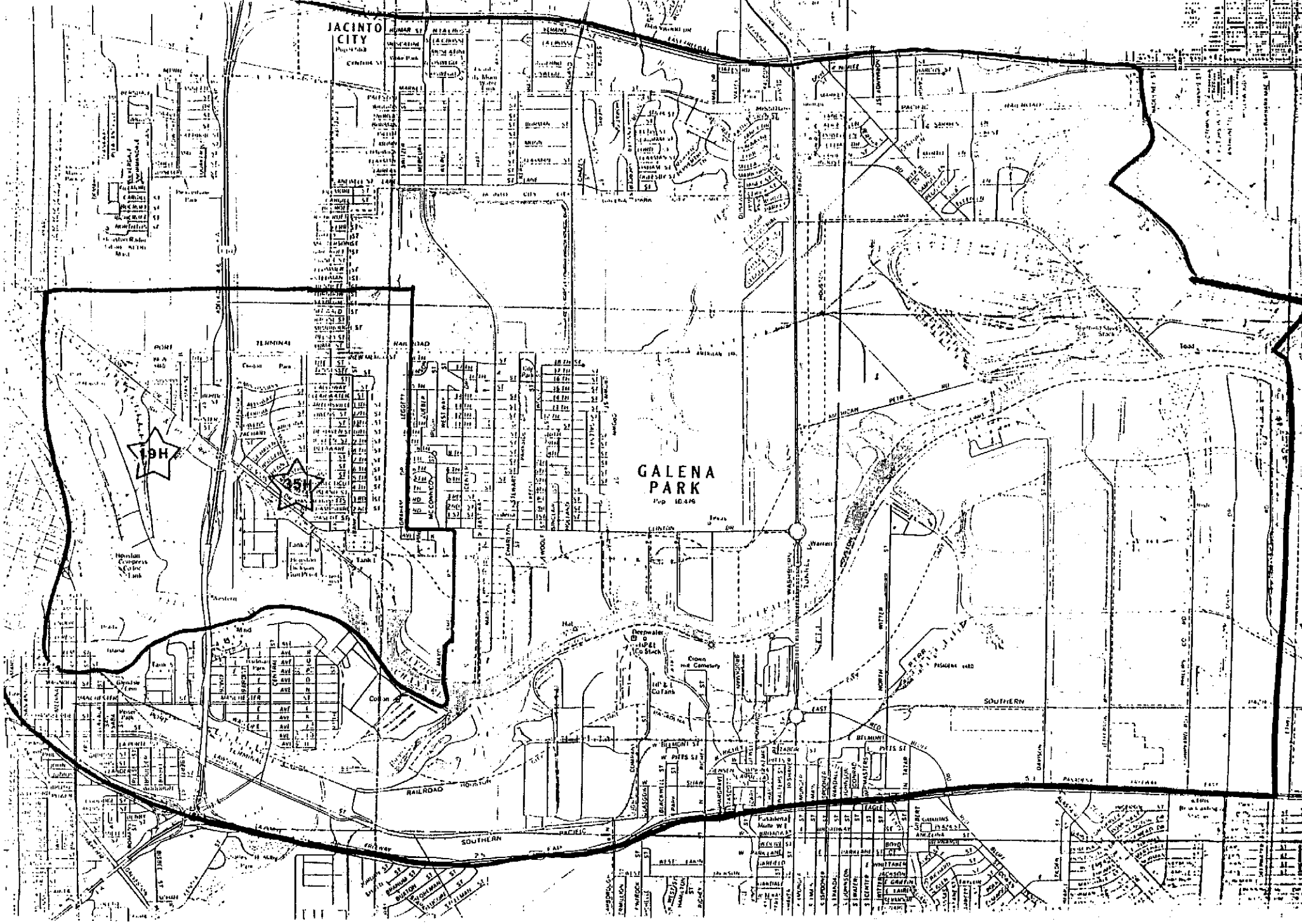
JACINTO CITY
GALENA PARK
Pop 10,496
19H
35H
TERMINAL
RAILROAD
SOUTHERN PACIFIC
McCONNICO
Crown Hill Cemetery
Drainage Ditch
SOUTHERN
PASADENA

Proposed PM10 Group II Area Boundaries